WHAT IS CLAIMED IS:

1. A method for monitoring a system in which a fluid flows, and which is characterized by a change in the system with time in space comprising the steps of:

A. monitoring a preselected area or volume of a system in which a fluid flows, and which is characterized by a change in the system with time in space to collect data at a plurality of time points correlated to a system event;

B. said collected data being indicative of a system parameter to be measured that varies with time as a function of system wash-in behavior and system wash-out behavior;

C. processing said collected data by

a. dividing the preselected area or volume of the system into a grid;

b. determining for each grid location at preselected time points a value of said system parameter;

c. determining for each grid location based on said time points preselected from the plurality of time points an intensity function that is correlated with initial rate of wash-in behavior;

d. colorizing and producing an output of each said grid point with respect to

color hue/color intensity on the basis of

i. color hue as determined by a plurality of wash-out behaviors; and

ii. color intensity as determined by said intensity function;

D. preparing a color hue/color intensity coded map from the outputs of said grid points representative of the system in two or three dimensions from the output of said colorized grid points.

2. The method of claim 1 wherein the time points are preselected on the basis of a predetermined criteria, the first time point being just before the monitoring step, the second time point being temporally after the first time point, and the third time point being temporally after the second time point.

3. The method of claim 1 including the further step of storing the outputs of the colored grid points.

4. The method of claim 1 including the further step of storing the coded map.

5. The method of claim 4 including the further step of digitally storing the map.

6. The method of claim 1 including the further steps of creating an image based on the intensity values of the grid points at each said preselected time point.

7. The method of claim 1 including the further step of displaying the color hue/color intensity coded map.

8. The method of claim 7 wherein a monitor is provided to display the coded map.

9. The method of claim 1 including the further step printing the coded map.

10. The method of claim 1 including the further step of fixing the coded map in a computer readable storage medium.

11. The method of claim 1 wherein the system event is the introduction into the fluid of a tracer medium.

12. The method of claim 1 wherein the system is human tissue and the fluid is blood.

13. The method of claim 1 wherein the system is breast tissue and the system event is the introduction of a contrast medium into the blood.

14. A method for monitoring a system in which a fluid flows, and which is characterized by a change in the system with time in space comprising the steps of:

A. monitoring a preselected area or volume of a system in which a fluid flows, and which is characterized by a change in the system with time in space to collect data at a plurality of time points correlated to a system event;

B. said collected data being values indicative of a system parameter to be measured that varies with time as a function of system wash-in behavior and system wash-out behavior;

C. processing said collected data by

a. dividing the preselected area or volume of the system into a multitude of discrete locations;

b. determining for each discrete location, at preselected time points, a value of said system parameter;

c. determining for each discrete location, based on said time points preselected from the plurality of time points, an intensity function that is correlated with wash-in behavior;

d. determining for each location, at said preselected time points, the wash-out behavior

e. colorizing each discrete location with respect to color hue for wash-out/color intensity for wash-in correlated with the value of the parameter of the system for said discrete location; and

e. producing an output for each colorized discrete location; and

D. preparing at least one color hue/color intensity coded map from the outputs of the colorized discrete locations of the system in two or three dimensions.

15. The method of claim 14 including the further step of choosing three time points as the preselected time points on the basis of a predetermined criteria, the first time point being before the monitoring step, the second time point being temporally after the first time point, and the third time point being temporally after the second time point.

16. The method of claim 14 including the further step of storing the outputs of the colored grid points.

17. The method of claim 14 including the further step of storing the coded map.

18. The method of claim 17 including the further step of digitally storing the map.

19. The method of claim 14 including the further steps of creating an image based on the intensity values of the grid points at each said preselected time point.

20. The method of claim 14 including the further step of displaying the color hue/color intensity coded map.

21. The method of claim 20 wherein the coded map is displayed on a monitor.

22. The method of claim 14 including the further step printing the coded map.

23. The method of claim 14 including the further step of fixing the coded map in a computer readable storage medium.

24. The method of claim 14 wherein the system event is the introduction of a tracer medium into the fluid.

25. The method of claim 14 wherein the system is human tissue and the fluid is blood.

26. The method of claim 25 wherein the system is breast tissue and the system event is the introduction of a contrast medium into the blood.

27. A method for monitoring a system in which a fluid flows, and which is characterized by a change in the system with time in space comprising the steps of:

A monitoring a preselected area or volume of a system in which a fluid flows and which is characterized by a change in the system with time in space to collect data at a plurality of preselected time points correlated to a system event;

B said collected data being in the form of signal intensities indicative of a system parameter to be measured that varies with time as a function of system wash-in behavior and system wash-out behavior;

C choosing three of the preselected time points on the basis of a predetermined criteria such that a first time point is before the monitoring step, a second time point is temporally after the first time point on the basis of the predetermined criteria, and the third time point is temporally after the second time point on the basis of the predetermined criteria;

D processing said collected data of signal intensities by

a. dividing the preselected area or volume of the system into a grid;

b. determining for each grid location at each of said chosen second and third time points a value of said signal intensity;

c. determining a color function on the basis of the relationship of the signal intensities at said chosen second and third time points;

d. applying the color function to each said grid point to colorize and produce an output of each grid point with respect to color hue of one of a plurality of colors on the basis of a plurality of distinct wash-out behaviors as determined from the signal intensities at the said grid point at said chosen second and third time points; and

E. preparing from the outputs of said colorized grid points a color hue coded map representative of said system parameter to be measured in two or three dimensions.

28. The method for monitoring a system according to claim 27 wherein three colors are employed for three distinct wash-out behaviors.

29. The method for monitoring a system according to claim 28 wherein the colors are red, green and blue.

30. The method for monitoring a system according to claim 27 in which the monitoring step is carried our using magnetic resonance.

31. The method for monitoring a system according to claim 27 including the further step of establishing thresholds for said three distinct wash-out behaviors.

32. The method for monitoring a system according to claim 27 wherein the monitoring step is carried out using tracer modulated MRI.

33. The method for monitoring a system according to claim 27 wherein said system parameter varies in time as a function of at least one variable.

34. The method for monitoring a system according to claim 33 wherein the at least one variables is one of microvascular permeability times surface area and fraction of extracellular volume.

35. The method for monitoring a system according to claim 27 wherein the predetermined criteria includes color distribution.

36. The method of claim 27 including the further step of storing the outputs of the colored grid points.

37. The method of claim 27 including the further step of storing the coded map.

38. The method of claim 37 including the further step of digitally storing the map.

39. The method of claim 27 including the further steps of creating an image based on the intensity values of the grid points at each said preselected time point.

40. The method of claim 27 including the further step of displaying the color hue coded map.

41. The method of claim 40 wherein a monitor is provided to display the coded map.

42. The method of claim 27 including the further step printing the coded map.

43. The method of claim 27 including the further step of fixing the coded map in a computer readable storage medium.

44. The method of claim 27 wherein the system event is the introduction of a tracer medium into the fluid.

45. The method of claim 27 wherein the system is human tissue and the fluid is blood.

46. The method of claim 27 wherein the system is breast tissue and the system event is the introduction of a contrast medium into the blood.

47. A method for monitoring a system in which a fluid flows, and which is characterized by a change in the system with time in space comprising the steps of:

A. monitoring a preselected area or volume of a system in which a fluid flows and which is characterized by a change in the system with time in space to collect data at a plurality of preselected time points correlated to a system event;

B. said collected data being in the form of signal intensities indicative of a system parameter to be measured that varies with time as a function of system wash-in behavior and system wash-out behavior;

C. choosing three of the preselected time points on the basis of a predetermined criteria such that a first time point is before the monitoring step, a second time point is temporally after the first time point on the basis of the predetermined criteria, and the third time point is temporally after the second time point on the basis of the predetermined criteria;

D. processing said collected data of signal intensities by

   a. dividing the preselected area or volume of the system into a grid;

   b. determining for each grid location at said chosen first and second time points a value of said signal intensity

   c. producing an output of each grid point with respect to color intensity of one of a plurality of colors on the basis of a plurality of distinct wash-in behaviors as determined from the signal intensities at the said grid point at said chosen first and second time points; and

E. preparing from said output of said grid points a color intensity coded map correlated with said system parameter to be measured in two or three dimensions.

48. The method for monitoring a system according to claim 47 wherein three colors are employed for three distinct wash-in behaviors.

49. The method for monitoring a system according to claim 48 wherein the colors are red, green and blue.

50. The method for monitoring a system according to claim 47 in which the monitoring step is carried our using magnetic resonance.

51. The method for monitoring a system according to claim 48 including the further step of establishing thresholds for said three distinct wash-in behaviors.

52. The method for monitoring a system according to claim 47 wherein the monitoring step is carried out using tracer modulated MRI.

53. The method for monitoring a system according to claim 47 wherein said system parameter varies in time as a function of at least one variable.

54. The method for monitoring a system according to claim 53 wherein the at least one variable is one of microvascular permeability times surface area and fraction of extracellular volume.

55. The method for monitoring a system according to claim 47 wherein the predetermined criteria includes color distribution.

56. The method of claim 47 including the further step of storing the outputs of the colored grid points.

57. The method of claim 47 including the further step of storing the coded map.

58. The method of claim 47 including the further step of digitally storing the map.

59. The method of claim 47 including the further steps of creating an image based on the intensity values of the grid points.

60. The method of claim 47 including the further step of displaying the color hue/color intensity coded map.

61. The method of claim 60 wherein a monitor is provided to display the coded map.

62. The method of claim 47 including the further step printing the coded map.

63. The method of claim 47 including the further step of fixing the coded map in a computer readable storage medium.

64. The method of claim 47 wherein the system event is the introduction into the fluid of a tracer medium.

65. The method of claim 47 wherein the system is human tissue and the fluid is blood.

66. The method of claim 65 wherein the system is breast tissue and the system event is the introduction of a contrast medium into the blood.

67. A method for monitoring a system in which a fluid flows, and which is characterized by a change in the system with time in space comprising the steps of:

A. monitoring a preselected area or volume of a system in which a fluid flows and which is characterized by a change in the system with time in space to collect data at a plurality of preselected time points correlated to a system event;

B. said collected data being in the form of signal intensities indicative of a system parameter to be measured that varies with time as a function of system wash-in behavior and system wash-out behavior;

C. choosing three of the preselected time points on the basis of a predetermined criteria such that a first time point is before the monitoring step, a second time point is temporally after the first time point on the basis of the predetermined criteria, and the third time point is temporally after the second time point on the basis of the predetermined criteria;

D. processing said collected data of signal intensities by

   a. dividing the preselected area or volume of the system into a grid;

   b. determining for each grid location at said chosen first, second and third time points a value of said signal intensity;

   c. colorizing and producing an output of each grid point with respect to color hue/color intensity of one of a plurality of colors on the basis of a plurality of distinct wash-out behaviors and wash-in behaviors, respectively, as determined from the signal intensities at the said grid point at said chosen first, second and third time points;

E. preparing from the outputs of said colorized grid points a color hue/color intensity coded map representative of said system parameter to be measured in two or three dimensions.

68. The method for monitoring a system according to claim 67 wherein three colors are employed for three distinct wash-out behaviors.

69. The method for monitoring a system according to claim 68 wherein the colors are red, green and blue.

70. The method for monitoring a system according to claim 67 in which the monitoring step is carried our using magnetic resonance.

71. The method for monitoring a system according to claim 67 including the further step of establishing thresholds for said three distinct wash-out behaviors.

72. The method for monitoring a system according to claim 67 wherein the monitoring step is carried out using tracer modulated MRI.

73. The method for monitoring a system according to claim 67 wherein said system parameter varies in time as a function of at least one variable.

74. The method for monitoring a system according to claim 73 wherein the at least one variable is one of microvascular permeability times surface area and fraction of extracellular volume.

75. The method for monitoring a system according to claim 67 wherein the predetermined criteria includes color distribution.

76. The method of claim 67 including the further step of storing the outputs of the colored grid points.

77. The method of claim 67 including the further step of storing the coded map.

78. The method of claim 77 including the further step of digitally storing the map.

79. The method of claim 67 including the further steps of creating an image based on the intensity values of the grid points at said preselected time points.

80. The method of claim 67 including the further step of displaying the color hue/color intensity coded map.

81. The method of claim 80 wherein the coded map is displayed on a monitor.

82. The method of claim 67 including the further step printing the coded map.

83. The method of claim 67 including the further step of fixing the coded map in a computer readable storage medium.

84. The method of claim 67 wherein the system event is the introduction of a tracer medium into the fluid.

85. The method of claim 67 wherein the system is human tissue and the fluid is blood.
86. The method of claim 85 wherein the system is breast tissue and the system event is the introduction of a contrast medium into the blood.
87. A color coded map for use in evaluating a selected place in a system in which a fluid flows, and which is characterized by a change in the system with time in space as a function of a system parameter related to system wash-in behavior and wash-out behavior at two preselected time intervals after a system event, said map depicting in two or three dimensions an image of the system in a plurality of colors, and wherein the discrete elements of the image have been coded by a color function related to system behavior at the two preselected time points to have a color hue of one of said plurality of colors indicative of the system wash-out behavior.
88. A color coded map as recited in claim 87 in which the system comprises human tissue.
89. A color coded map as recited in claim 88 in which the system comprises human breast tissue.
90. A color coded map as recited in claim 88 in which the system comprises two breasts.
91. A color coded map as recited in claim 87 in which the system event is defined by injection of a tracer into the fluid.
92. A color coded map for use in evaluating a selected place in a system in which a fluid flows, and which is characterized by a change in the system with time in space as a function of a system parameter related to system wash-in behavior and wash-out behavior at two preselected time intervals after a system event, said map depicting in two or three dimensions an image of the system in a plurality of colors, and wherein the discrete elements of the image have been coded by an intensity function related to system behavior before the system event and the first of the two selected time points to have a color intensity indicative of the system wash-in behavior.
93. A color coded map as recited in claim 92 in which the system comprises human tissue.
94. A color coded map as recited in claim 92 in which the system comprises human breast tissue.
95. A color coded map as recited in claim 92 in which the system comprises two breasts.
96. A color coded map as recited in claim 92 in which the system event is defined by injection of a tracer into the fluid.

97. A color coded map for use in evaluating a selected place in a system in which a fluid flows, and which is characterized by a change in the system with time in space as a function of a system parameter related to system wash-in behavior and wash-out behavior at two preselected time intervals after a system event, said map depicting in two or three dimensions an image of the system in a plurality of colors, and wherein the discrete elements of the image have been coded by a color function related to system behavior at the two preselected time points to have a color hue of one of said plurality of colors indicative of the system wash-out behavior and have been coded by an intensity function related to system behavior at the system event and the first of the two selected time points to have a color intensity indicative of the system wash-in behavior.

98. A color coded map as recited in claim 97 in which the system comprises human tissue.

99. A color coded map as recited in claim 98 in which the system comprises human breast tissue.

100. A color coded map as recited in claim 99 in which the system comprises two breasts.

101. A color coded map as recited in claim 97 in which the system event is defined by injection of a tracer into the fluid.

102. A color coded map for use in evaluating a lesion in the breast of a subject body in which blood flows and in which a contrast agent has been injected into the blood and which is characterized by a change in the concentration of the contrast agent in the breast with time in space as a function of the contrast agent wash-in and wash-out behavior at two time intervals after injection of the contrast agent, said map depicting in two or three dimensions an image correlated with the said behavior, and wherein the discrete elements of the image have been color coded by a color function to have a color hue of one of a plurality of colors indicative of the contrast agent wash-out behavior and have been coded by an intensity function to have a color intensity indicative of the contrast agent wash-in behavior.

103. The color coded map of claim 102 wherein said behaviors are determined by two variables, K and ν, wherein K defines microvascular permeability and ν defines the fraction of extracellular volume which estimates the amount of free space in the breast.

104. Apparatus for monitoring a system in which a fluid flows, and which is characterized by a change in the system with time in space comprising:

A. a monitor for monitoring a preselected area or volume of a system in which a fluid flows and which is characterized by a change in the system with time in space to collect data at a plurality of preselected time points correlated to a system event;

B. said collected data being in the form of signal intensities indicative of a system parameter to be measured that varies with time as a function of system wash-in behavior and system wash-out behavior;

C. a processor for processing said collected data of signal intensities by

   a. dividing the preselected area or volume of the system into a grid;

   b. selecting three of the preselected time points on the basis of a predetermined criteria such that a first time point is before the monitoring step, a second time point is temporally after the first time point on the basis of the predetermined criteria, and the third time point is temporally after the second time point on the basis of the predetermined criteria;

   c. determining for each grid location at said selected time points values of said signal intensity;

   d. colorizing and producing an output of each grid point with respect to color hue of one of a plurality of colors on the basis of a plurality of distinct wash-out behaviors and a color function determined from the signal intensities at the said grid point for the said selected preselected time points;

D. a generator for generating from the outputs of said colorized grid points a color hue coded map representative of said system parameter to be measured in two or three dimensions.

105. Apparatus according to claim 104 wherein a selector is provided to derive the color function from the signal intensities at the second and third time points.

106. Apparatus for monitoring a system in which a fluid flows, and which is characterized by a change in the system with time in space comprising:

A. a monitor for monitoring a preselected area or volume of a system in which a fluid flows and which is characterized by a change in the system with time in space to collect data at a plurality of preselected time points correlated to a system event;

B. a collector to collect said collected data in the form of signal intensities indicative of a system parameter to be measured that varies with time as a function of system wash-in behavior and system wash-out behavior;

C. a processor for processing said collected data of signal intensities by

a. dividing the preselected area or volume of the system into a grid;

b. selecting three of the preselected time points on the basis of a predetermined criteria such that a first time point is before the monitoring step, a second time point is temporally after the first time point on the basis of the predetermined criteria, and the third time point is temporally after the second time point on the basis of the predetermined criteria;

c. determining for each grid location at said selected time points values of said signal intensity;

d. colorizing and producing an output of each grid point with respect to color intensity on the basis of a plurality of distinct wash-in behaviors and an intensity function determined from the signal intensities at the said grid point based on said selected preselected time points;

D. a generator for generating from the outputs of said colorized grid points a color intensity coded map representative of said system parameter to be measured in two or three dimensions.

107. Apparatus according to claim 106 wherein the color function is derived from the signal intensities at the first and second time points.

108. Apparatus for monitoring by magnetic resonance imaging (MRI) a breast of a subject body in which blood flows and in which a contrast agent has been injected into the blood and which is characterized by a change in the concentration of the contrast agent in the breast with time in space comprising:

(a) a monitor for monitoring an event in the breast for collecting data indicative of MRI signal intensity of the breast that varies with time as a function of contrast agent wash-in and wash-out behavior;

(b) data processor responsive to the monitor for receiving the collected data and processing same including;

(1) a divider for dividing the space a grid;

(2) a determinator for determining for each grid location a calculated value and intensity function indicative of the wash-in of the contrast agent related to the monitored MRI signal intensity for each time point;

(3) a colorizor for coloring all grid locations one of a plurality of colors based on a color function indicative of wash-out behavior of the contrast agent;

(4) an arranger for arranging all grid locations for all time points into a composite to develop a color coded map of the grid with each grid location having a color hue/color intensity correlated to the function of contrast agent wash-in and wash-out behavior.

109. Apparatus for monitoring by magnetic resonance imaging (MRI) a breast of a subject body in which blood flows and in which a contrast agent has been injected into the blood and which is characterized by a change in the concentration of the contrast agent in the breast with time in space comprising:

(a) a monitor for monitoring an event in the breast for collecting data indicative of MRI signal intensity of the breast that varies with time as a function of contrast agent wash-out behavior;

(b) data processor responsive to the monitor for receiving the collected data and processing same including;

(1) a divider for dividing the space a grid;

(2) a determinator for determining for each grid location a value indicative of the wash-out of the contrast agent related to the monitored MRI signal intensity for two selected time points and providing an output;

(3) a colorizor responsive to the output of the determinator for coloring all grid locations one of a plurality of colors based on a color function indicative of wash-out behavior of the contrast agent;

(5) an arranger for arranging all grid locations for all time points into a composite to develop a color coded map of the grid with each grid location having a color hue correlated to the function of contrast agent wash-out behavior.

110. Apparatus for monitoring by magnetic resonance imaging (MRI) a breast of a subject body in which blood flows and in which a contrast agent has been injected into the blood and which is characterized by a change in the concentration of the contrast agent in the breast with time in space comprising:

(a) a monitor for monitoring an event in the breast for collecting data indicative of MRI signal intensity of the breast that varies with time as a function of contrast agent wash-in and wash-out behavior;

(b) data processor responsive to the monitor for receiving the collected data and processing same including;

(1) a divider for dividing the space a grid;

(2) a determinator for determining for each grid location a value and intensity function indicative of the wash-in of the contrast agent related to the monitored MRI signal intensity for each time point;

(3) a colorizor for coloring all grid locations one of a plurality of colors based on a color function indicative of wash-out behavior of the contrast agent;

(5) an arranger for arranging all grid locations for all time points into a composite to develop a color coded map of the grid with each grid location having a color intensity correlated to the function of contrast agent wash-in behavior.

111. Software for use with a computer having a memory, an input device for generating device event signals and a display, the software comprising a computer usable medium having computer readable program code thereon including:

first program logic for dividing into a grid a system in which fluid flows and which is characterized by a change in the system with time in space correlated to a wash-in and wash-out behavior of the system;

second program logic responsive to device event signals for determining an intensity function of each grid location related to wash-in behavior;

third program logic to color all grid locations based on a predetermined color function correlated with wash-out behavior; and

fourth program logic responsive to the second and third program logic for developing a color coded map of the grid with each grid location correlated to a color hue related to wash-out behavior, and correlated to a color intensity as determined by said intensity function related to wash-in behavior.

112. Software as in claim 109 further including fifth program logic responsive to the fourth program logic for displaying the color coded map on a display.

113. Software for use with a computer having a memory, an input device for generating device event signals and a display, the software comprising a computer usable medium having computer readable program code thereon including:
first program logic for dividing into a grid a system in which fluid flows and which is characterized by a change in the system with time in space correlated to a wash-in and wash-out behavior of the system;
second program logic to color all grid locations based on a predetermined color function correlated with wash-out behavior; and
third program logic responsive to the second program logic for developing a color coded map of the grid with each grid location correlated to a color hue related to wash-out behavior.

114. Software for use with a computer having a memory, an input device for generating device event signals and a display, the software comprising a computer usable medium having computer readable program code thereon including:
first program logic for dividing into a grid a space defined by two variables correlated to a wash-in and wash-out behavior of a system in which fluid flows which is characterized by a change in the system with time in space;
second program logic responsive to device event signals for determining an intensity function of each grid location related to wash-in behavior;
third program logic to color all grid locations based on a predetermined color function correlated with wash-out behavior; and
fourth program logic responsive to the second and third program logic for developing a color coded map of the grid with each grid location correlated to a color intensity related to wash-in behavior.

115. Software for use with a computer having a memory, an input device for generating device event signals and a display, the software comprising a computer usable medium having computer readable program code thereon including:
first program logic for dividing into a grid a space defined by at least one variable correlated to a wash-in and wash-out behavior of a system in which fluid flows which is characterized by a change in the system with time in space;

second program logic responsive to device event signals for determining an intensity function of each grid location related to wash-in behavior;

third program logic to color all grid locations; and

fourth program logic responsive to the second and third program logic for developing a color coded map of the grid with each grid location correlated to one of a color and a color intensity as determined by said intensity function related to wash-in behavior and said coloring of all grid locations, respectively.

116. Data processing system for producing a color coded map for evaluating the output of a monitored system in which a fluid flows and which is characterized by a change in the monitored system with time in space with respect to wash-in and wash-out and wherein the monitoring occurs at a preselected location comprising:

(a) computer processor for processing data;

(b) storage means for storing data on a storage medium;

(c) means for initializing the storage medium;

(d) a first processor controller for dividing the space into a grid;

(e) a second processor controller for determining for each grid location a signal intensity at each of a plurality of preselected time points;

(f) a third processor controller for coloring all grid locations one of a plurality of colors based on a color function correlated with the determined signal intensities and with monitored system wash-out behavior; and

(g) a fourth processor controller for arranging all grid locations for all time points into a color coded map of the grid with each grid location correlated to color hue with respect to wash-out and with color intensity as determined by an intensity function derived from the signal intensities related to wash-in.

117. Data processing system according to claim 116 including a fourth processor controller for determining the maximum of the signal intensity of the grid locations and normalizing all grid locations with reference to the maximum.

118. Data processing system for producing a color coded map for evaluating the output of a monitored system in which a fluid flows and which is characterized by a change in the monitored system with time in space with respect to wash-in and wash-out and wherein the monitoring occurs at a preselected location comprising:

(a) computer processor for processing data;

(b) storage means for storing data on a storage medium;

(c) means for initializing the storage medium;

(d) a first processor controller for dividing the space into a grid;

(e) a second processor controller for determining for each grid location a signal intensity at each of a plurality of preselected time points;

(f) a third processor controller for coloring all grid locations one of a plurality of colors based on a color function correlated with the signal intensities and with monitored system wash-out behavior; and

(h) a fifth processor controller for arranging all grid locations for all time points into a color coded map of the grid with each grid location correlated to color hue with respect to wash-out.

119. Data processing system for producing a color coded map for evaluating the output of a monitored system in which a fluid flows and which is characterized by a change in the monitored system with time in space with respect to wash-in and wash-out and wherein the monitoring occurs at a preselected location comprising:

(a) computer processor for processing data;

(b) storage means for storing data on a storage medium;

(c) means for initializing the storage medium;

(d) a first processor controller for dividing the space into a grid;

(e) a second processor controller for determining for each grid location a signal intensity of the parameter at each of a plurality of preselected time points;

(f) a third processor controller for coloring all grid locations one of a plurality of colors; and

(h) a fourth processor controller for arranging all grid locations for all time points into a color coded map of the grid with each grid location correlated to color intensity as determined by an intensity function derived from the signal intensities related to wash-in.